

# **WEST NILE QUESTIONS & ANSWERS, 2006 SEASON**

Main source: CDC West Nile Questions and Answers: [www.cdc.gov/ncidod/dvbid/westnile/qa.htm](http://www.cdc.gov/ncidod/dvbid/westnile/qa.htm)  
and South Dakota Department of Health <http://WestNile.sd.gov>

## **Q. WHAT DISEASES DOES WEST NILE VIRUS (WNV) CAUSE IN HUMANS?**

A. West Nile virus can cause encephalitis, meningitis, WN fever and poliomyelitis. Encephalitis and meningitis are called "West Nile neuro-invasive disease". It is important to note that most people who contract WNV do not become ill.

## **Q. WHAT IS WEST NILE ENCEPHALITIS?**

A. "Encephalitis" is an inflammation of the brain and can be caused by viruses and bacteria. West Nile encephalitis is a severe infection of the brain caused by West Nile virus.

South Dakota human WNV cases and animal detections, 2002-2005

	2002	2003	2004	2005	Total
Human cases	37	1,039	51	229	1,356
West Nile Fever	23	868	45	194	1,130
Neuro-invasive disease	14	171	6	35	226
Deaths	0	14	1	2	17
Fetus	?	9	1	1	11
Positive Blood donors	?	60	3	19	82
Hospitalized	14	267	8	57	346
<b>Animal detections</b>					
Horses	690	73	5	4	772
Birds	94	131	65	16	306
Mosquitoes	35	1,167	1,218	6,336	8,756

## **Q. WHAT IS WEST NILE MENINGITIS?**

A. West Nile meningitis is an inflammation of the membrane around the brain and spinal cord.

## **Q. WHAT IS WEST NILE FEVER?**

A. West Nile fever is a disease characterized by fever, headache, rash and flu-like symptoms. WN fever usually lasts a few days, but may last several weeks.

## **Q. WHAT IS WEST NILE POLIOMYELITIS?**

A. West Nile poliomyelitis, or acute flaccid paralysis, is an acute onset of arm or leg weakness with marked progression over 48 hours. See [www.cdc.gov/ncidod/dvbid/westnile/qa/Poliomyelitis.htm](http://www.cdc.gov/ncidod/dvbid/westnile/qa/Poliomyelitis.htm)

## **Q. WHERE CAN I GET MORE DETAILED CLINICAL INFORMATION ABOUT WNV DISEASE?**

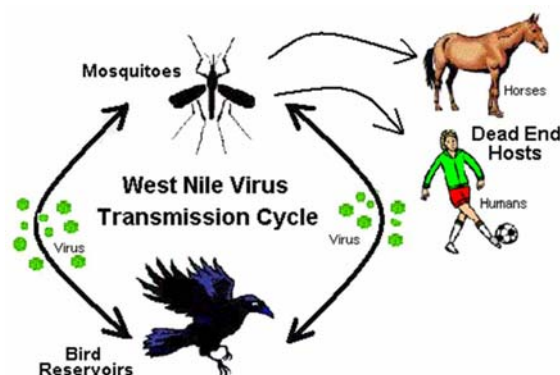
A. More detailed clinical information on issues that may be helpful to physicians can be found on at [www.cdc.gov/ncidod/dvbid/westnile/clinicians/](http://www.cdc.gov/ncidod/dvbid/westnile/clinicians/).

## **Q. WHEN DID WEST NILE FIRST HIT SOUTH DAKOTA?**

A. West Nile virus was first detected in South Dakota in August 2002. During the summer of 2003 SD experienced a large epidemic of WNV and we have had cases every year since. The tables above and below show the numbers of SD human and animal cases over the past three West Nile seasons.

## **Q. WHERE DID WNV COME FROM?**

A. West Nile virus was previously found in Africa, Southern Europe and the Middle East, but until



1999 had not previously been found in the Western Hemisphere. It is not known from where the US virus originated.

**Q. HOW LONG HAS WNV BEEN IN THE UNITED STATES?**

**A.** Scientists believe the virus has probably been in the eastern United States since at least early summer of 1999, possibly longer.

**Q. HOW MANY CASES OF WEST NILE DISEASE AND DEATHS IN HUMANS HAVE BEEN REPORTED?**

**A.**

Year	<u>USA</u> human WNV cases	<u>USA</u> WNV deaths	<u>South Dakota</u> human WNV cases	<u>South Dakota</u> WNV deaths
1999	62	7	0	0
2000	21	2	0	0
2001	66	9	0	0
2002	4156	284	37	0
2003	9862	264	1039	14
2004	2539	100	51	1
2005	3000	119	229	2
<b>TOTAL</b>	<b>19,706</b>	<b>785</b>	<b>1,356</b>	<b>17</b>

**Q. IS WNV NOW ESTABLISHED IN THE WESTERN HEMISPHERE?**

**A.** Yes, WNV is now established in the Western Hemisphere, including the United States, Canada and South Dakota.

**Q. WHAT TIME OF YEAR DOES WEST NILE HIT?**

**A.** In the temperate zone (like South Dakota) West Nile cases occur primarily in summer or early fall (July, August and September). In the Southern states where temperatures are milder, WNV can be transmitted earlier in the spring and later into the fall.

**Q. WHAT IS ST. LOUIS ENCEPHALITIS (SLE)?**

**A.** St Louis encephalitis is a mosquito borne viral disease. It is closely related to WNV causing similar symptoms in humans. In 2003 South Dakota reported 2 cases of SLE.

## TRANSMISSION OF WEST NILE VIRUS

**Q. HOW DO PEOPLE GET WEST NILE ENCEPHALITIS?**

**A.** Primarily by the bite of mosquitoes infected with West Nile virus. To a lesser extent people may also be infected by blood transfusion, organ transfusion, breast milk or intra-uterine infection.

**Q. WHAT IS THE MOSQUITO TRANSMISSION CYCLE OF WEST NILE VIRUS?**

**A.** Mosquitoes become infected when they feed on birds infected with the WN virus. Infected mosquitoes can then transmit WN virus to humans and animals. The virus is located in the mosquito's salivary glands. When the mosquito bites the virus may be injected into human, where it multiplies and may cause illness.

**Q. IF I LIVE IN AN AREA WHERE BIRDS OR MOSQUITOES WITH WNV HAVE BEEN REPORTED AND A MOSQUITO BITES ME, AM I LIKELY TO GET SICK?**

**A.** The chance of becoming severely ill from any one mosquito bite is small. Even in areas where mosquitoes do carry the virus, few mosquitoes are infected. Even if the mosquito is infected, less than 1% of people who are bitten and infected will get severely ill.

**Q. CAN YOU GET WEST NILE DISEASE FROM ANOTHER PERSON?**

**A.** No. West Nile encephalitis is NOT transmitted from person-to-person. You cannot get WNV from touching or kissing a person who has the disease.

**Q. CAN WEST NILE BE SPREAD BY BLOOD TRANSFUSIONS?**

**A.** Blood transfusions are now protected by screening blood donations unit for the WNV.

**Q. SHOULD PEOPLE AVOID DONATING BLOOD?**

**A.** No. There is no risk of WNV infection for people who give blood. Blood saves lives and is always needed, especially during the summer months. All donors are encouraged to truthfully answer the questions asked by the blood bank to make sure they are fit to donate.

**Q. If a person had a WNV infection in the past, can they still donate blood?**

**A.** Yes. The actual virus is in the blood stream for a very short time. People fight the virus and usually get rid of it in a few days. They also develop an antibody (a protein that helps fight infections). The antibody will protect them from getting a WNV infection in the future.

People with current West Nile viral illness are not be allowed to donate blood for at least 28 days from the start of their symptoms OR until 14 days after they recover, whichever date is later. If there are no symptoms to suggest a WNV illness, a positive WNV antibody test result alone should not be grounds for refusing a blood donation.

**Q. What happens to the blood collected from donors that test positive for WNV?**

**A.** As soon as a unit of blood is identified as possibly infected with WNV by initial screening, it is removed from the blood supply.

**Q. WILL THE BLOOD BANK NOTIFY ME IF MY BLOOD TESTS POSITIVE FOR WNV?**

**A.** Blood banks will contact donors who may have a WNV infection. Another blood sample will be requested to help confirm the infection.

**Q. WHAT DO I NEED TO DO IF MY BLOOD TESTS POSITIVE FOR WNV?**

**A.** If the blood bank informs you that your blood was likely infected with WNV you may be requested to give another blood sample to help confirm the infection. If you feel ill you should consult your health care provider.

**Q. DOES WNV ILLNESS DURING PREGNANCY POSE A HEALTH RISK TO THE FETUS?**

**A.** There have been cases of transplacental (mother-to-fetus) transmission of WNV.

Pregnant women should take precautions by avoiding mosquitoes, using protective clothing, and using repellents. Repellents with DEET or picaridin are safe for pregnant women, and soybean oil based repellent or oil of lemon eucalyptus that provides limited term, good protection.

Pregnant women who become ill should see their health care provider, and if diagnosed with WNV infection she should undergo appropriate diagnostic testing.

**Q. CAN WNV BE TRANSMITTED THROUGH BREAST MILK?**

A. WNV can be transmitted through breast milk. A mother in Michigan had West Nile infection shortly after giving birth. Laboratory analysis showed WNV in her breast milk. She breastfed her infant, and three weeks later, her baby's blood tested positive for WNV. Because of the infant's minimal outdoor exposure, it is not likely that infection was from a mosquito. The infant was most likely infected through breast milk. The child is healthy, and did not have symptoms of WNV infection.

**Q. IF I AM PREGNANT OR BREAST-FEEDING, SHOULD I USE INSECT REPELLENT CONTAINING DEET OR PICARIDIN?**

A. Yes. Insect repellents help people reduce their exposure to mosquito bites that may carry potentially serious viruses such as West Nile virus, and allow them to continue to play and work outdoors. There are no reported problems following use of repellents containing DEET or picaridin in pregnant or breast-feeding women.

**Q. SHOULD I CONTINUE BREAST-FEEDING IF I LIVE IN AN AREA OF WNV TRANSMISSION?**

A. Yes. Because the health benefits of breast-feeding are well established, and the risk for WNV transmission through breast-feeding is unknown, the new findings do not suggest a change in breast-feeding recommendations.

**Q. SHOULD I CONTINUE BREAST-FEEDING IF I AM SYMPTOMATIC FOR WNV?**

A. Yes. The health benefits of breast-feeding are well established, and the risk for WNV transmission through breast-feeding is unknown. The new findings do not change the breast-feeding recommendations.

**Q. IF I AM BREAST-FEEDING, SHOULD I BE TESTED FOR WNV?**

A. No. There is no need to be tested just because you are breast-feeding.

**Q. BESIDES MOSQUITOES, CAN YOU GET WNV DIRECTLY FROM OTHER INSECTS OR TICKS?**

A. Infected mosquitoes are the primary source for West Nile virus. Although ticks infected with WNV have been found, the tick's role in transmission of the virus is uncertain.

**Q. HOW MANY TYPES OF ANIMALS HAVE BEEN FOUND TO BE INFECTED WITH WEST NILE VIRUS?**

A. Although the vast majority of infections have been identified in birds, WNV has been shown to infect horses, cats, dogs, bats, chipmunks, skunks, squirrels, domestic rabbits, alligators and several other animals.

**Q. WHAT PROPORTION OF PEOPLE WITH SEVERE WNV ILLNESS DIE?**

A. Among people with severe WNV illness, encephalitis, 3% to 15% die. The highest death rates are among the elderly. Less than 1% of those infected will develop severe illness.

**Q. IF A PERSON CONTRACTS WEST NILE VIRUS, DOES THAT PERSON DEVELOPS A NATURAL IMMUNITY TO FUTURE INFECTION BY THE VIRUS?**

A. Yes, it is assumed that immunity will be lifelong; however, it may wane in later years.

## **PREVENTION OF WEST NILE VIRUS**

**Q. WHAT CAN BE DONE TO PREVENT OUTBREAKS OF WEST NILE VIRUS?**

A. Prevention and control of WNV is best accomplished through integrated mosquito control programs. These programs should include surveillance for WNV activity in mosquitoes, birds, horses and humans, and implementation of appropriate mosquito control measures such as eliminating mosquito breeding places, killing mosquito larvae

and spraying adult mosquitoes. When virus activity is detected in an area, residents should be alerted to increase measures to reduce contact with mosquitoes.

For more information please see "Public Health Confronts the Mosquito" at:  
<http://www.astho.org/pubs/FinalReportPDF.pdf>

**Q. IS THERE A HUMAN VACCINE AGAINST WEST NILE ENCEPHALITIS?**

A. No, but scientists are now working on a human West Nile vaccine. A recent article on West Nile virus research is found at <http://www.pnas.org/cgi/content/full/103/17/6694>

**Q. SHOULD PEOPLE TAKE THE WNV VACCINE THAT IS LICENSED FOR USE IN HORSES?**

A. No. The horse vaccine has not been studied in humans and could be harmful. Veterinary vaccines and other veterinary drugs should never be used in humans.

**Q. WHAT CAN I DO TO REDUCE MY RISK OF BECOMING INFECTED WITH WEST NILE VIRUS?**

- Stay indoors at dawn, dusk, and in the early evening.
- Wear long-sleeved shirts and long pants whenever you are outdoors.
- Spray clothing with repellents containing permethrin or DEET since mosquitoes may bite through thin clothing.
- Apply insect repellent to exposed skin. An effective repellent will contain Picaridin or 35% DEET. DEET in high concentrations (greater than 35%) provides little additional protection. Be sure to read and follow the manufacturer's DIRECTIONS FOR USE, printed on the product.
- *Note:* Vitamin B and "ultrasonic" devices are NOT effective in preventing mosquito bites.

**Q. WHERE CAN I GET MORE INFORMATION ON MOSQUITO REPELLENTS?**

A. Visit the American Academy of Pediatrics website:  
[www.aap.org/family/wnv-jun03.htm](http://www.aap.org/family/wnv-jun03.htm)  
Environmental Protection Agency (EPA) website:  
[www.epa.gov/pesticides/factsheets/chemicals/deet.htm](http://www.epa.gov/pesticides/factsheets/chemicals/deet.htm)

**Q. WHERE CAN I GET INFORMATION ABOUT THE USE OF PESTICIDE SPRAYS THAT ARE BEING USED FOR MOSQUITO CONTROL?**

A. The federal agency responsible for pesticide evaluation is the Environmental Protection Agency (EPA) for detailed answers to the questions about pesticides used for mosquito control. [www.epa.gov/pesticides](http://www.epa.gov/pesticides) .  
For local information on pesticides used in your community, please call your city office.

**Q. ARE THERE ANY NEW MOSQUITO REPELLENTS?**

A. Yes, Picaridin and Oil of Lemmon Eucalyptus have been registered with the EPA and endorsed by the CDC [www.cdc.gov/ncidod/dvbid/westnile/RepellentUpdates.htm](http://www.cdc.gov/ncidod/dvbid/westnile/RepellentUpdates.htm)

**Q. SHOULD WE ENCOURAGE BATS TO LIVE ON OUR PROPERTY TO HELP CONTROL MOSQUITOES?**

A. No. Bats are selective feeders and mosquitoes make up a small percent of their diet. Bats typically feed on the larger insects. Bats can also harbor rabies. Bats are not an adequate means in controlling mosquitoes.

## SYMPTOMS OF WEST NILE VIRUS

**Q. WHO IS AT RISK FOR GETTING WEST NILE ENCEPHALITIS?**

**A.** All residents of areas where virus activity has been identified are at risk of getting West Nile encephalitis; persons older than 50 years have the highest risk of severe disease.

**Q. WHAT ARE THE SYMPTOMS OF WEST NILE ENCEPHALITIS?**

**A.** Most infections are mild, and symptoms include fever, headache, and body aches, occasionally with skin rash and swollen lymph glands. More severe infection may be marked by headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, paralysis, and, rarely, death.

**Q. WHAT IS THE INCUBATION PERIOD IN HUMANS (i.e., time from infectious mosquito bite until the onset of disease symptoms) FOR WEST NILE ENCEPHALITIS?**

**A.** 3 to 15 days.

**Q. HOW DOES WNV ACTUALLY CAUSE SEVERE ILLNESS AND DEATH IN HUMANS?**

**A.** Following a bite by an infected mosquito, WNV multiplies in the person's blood system and crosses the blood-brain barrier to reach the brain. The virus interferes with normal central nervous system functioning and causes inflammation of brain tissue.

## TESTING AND TREATING WEST NILE ENCEPHALITIS IN HUMANS

**Q. I THINK I HAVE SYMPTOMS OF WEST NILE VIRUS. WHAT SHOULD I DO?**

**A.** Contact your health care provider if you have concerns about your health. If you develop high fever, confusion, muscle weakness, and severe headaches, you should see your doctor immediately.

**Q. HOW DO PHYSICIANS TEST FOR WEST NILE VIRUS?**

**A.** Your physician will first take a medical history to assess your risk for West Nile virus. People who live in or traveled to states with WNV activity are at risk of getting West Nile encephalitis; persons older than 50 years of age have the highest risk of severe disease. If you are determined to be at high risk and have symptoms of West Nile encephalitis, they will draw a blood sample for antibody testing.

**Q. HOW IS WEST NILE ENCEPHALITIS TREATED?**

**A.** There is no specific therapy. In more severe cases, intensive supportive therapy is needed, often involving hospitalization, intravenous fluids, airway management, respiratory support (ventilator), prevention of secondary infections (pneumonia, urinary tract, etc.), and good nursing care.

## WEST NILE VIRUS AND BIRDS

**Q. WHY LOOK FOR DEAD BIRDS?**

**A.** West Nile is a bird disease. A bird testing positive for WNV is a warning sign that WNV is present in your community.

**Q. CAN YOU GET WNV DIRECTLY FROM BIRDS?**

**A.** No cases have been reported of a person getting the virus from handling live or dead infected birds. However, persons should avoid touching any dead birds. Use gloves or double plastic bags to place the carcass in the city garbage or bury it.

**Q. HOW CAN I REPORT A DEAD BIRD(S) IN MY AREA AND HAVE IT TESTED?**

**A.** Contact the Cooperative Extension Educator in your county or call the state Department of Health at 1-800-592-1861. The State pays for shipping and testing the bird. The State wants to test dead crows, blue jays, magpies, hawks, owls and eagles because they are the most sensitive to WNV.

**Q. HOW MANY BIRDS WILL THE STATE TEST?**

**A.** We will test birds until 2 WNV positive detections have been made in each County.

## **WEST NILE VIRUS AND DOGS AND CATS**

**Q. CAN WNV CAUSE ILLNESS IN DOGS OR CATS?**

**A.** A few WNV infected dogs and cats have been reported to CDC. In South Dakota there have been 4 reports of WNV infected dogs since 2002. Experimentally infected dogs showed no symptoms after infection with WNV. Some infected cats exhibited mild, nonspecific symptoms during the first week after infection--for the most part only showing a slight fever and slight lethargy. It is unlikely that most pet owners would notice any unusual symptoms or behavior in cats or dogs that become infected with WNV.

**Q. IS THERE A WNV VACCINE FOR CATS OR DOGS?**

**A.** No.

**Q. CAN I USE INSECT REPELLENT ON MY PETS?**

**A.** DEET-based repellents, which are recommended for humans, are **not** approved for veterinary use (animals tend to ingest them by licking.) Talk with your veterinarian for advice about the appropriate product for use on your pet.

## **WEST NILE VIRUS AND HORSES**

Please see the South Dakota Animal Industry Board website at [www.state.sd.us/aib](http://www.state.sd.us/aib)

**Q. HOW DO THE HORSES BECOME INFECTED WITH WEST NILE VIRUS?**

**A.** The same way humans become infected—by the bite of infectious mosquitoes.

**Q. CAN I GET INFECTED WITH WNV BY CARING FOR AN INFECTED HORSE?**

**A.** West Nile virus is transmitted by infectious mosquitoes. There are no documented cases of horse-to-person transmission. Normal veterinary infection control precautions should be followed when caring for a horse suspected to have this or any viral infection.

**Q. CAN A SICK HORSE INFECT OTHER HORSES?**

**A.** No. There is no documented evidence that WNV is transmitted between horses. However, horses with suspected WNV should be protected from mosquito bites.

**Q. MY HORSE IS VACCINATED AGAINST EASTERN EQUINE ENCEPHALITIS (EEE), WESTERN EQUINE ENCEPHALITIS (WEE), AND VENEZUELAN EQUINE ENCEPHALITIS (VEE). WILL THESE VACCINES PROTECT MY HORSE AGAINST WNV INFECTION?**

A. No. EEE, WEE, and VEE belong to another family of viruses for which there is no cross-protection.

Q. CAN I VACCINATE MY HORSE AGAINST WNV INFECTION?

A. Yes, there are effective vaccines for horses. Call your veterinarian for information.

Q. CAN HUMANS USE THE HORSE VACCINE TO PROTECT THEMSELVES AGAINST WNV INFECTION?

A. Absolutely not. The horse vaccine is not approved for humans. It could be dangerous for people to take the horse vaccine.

Q. WHERE CAN I GET MORE INFORMATION ON HORSES AND WEST NILE VIRUS?

A. Visit the USDA website Animal and Plant Health Inspection Service (APHIS)  
[www.aphis.usda.gov/lpa/issues/wnv/wnv.html](http://www.aphis.usda.gov/lpa/issues/wnv/wnv.html)

## WEST NILE VIRUS AND WILD GAME HUNTERS

Q. IS THERE A RISK OF GETTING INFECTED WITH WNV IF I EAT GAME BIRDS INFECTED WITH THE VIRUS?

A. There is no evidence that people can become infected with WNV from eating infected meat. The small, theoretical risk of infection can be eliminated by proper handling and thorough cooking of meat before it is eaten.

Q. WHAT ABOUT THE RISK OF WNV INFECTION FROM DRIED, UNCOOKED MEAT, LIKE JERKY?

A. There are still no published studies that directly address this question. Most studies indicate that while mammals can become infected with West Nile virus, they do not develop high concentrations of virus in their blood or tissues. Although it is unlikely that jerky would have much virus present, and probable that gastrointestinal digestion would further limit the possibility of infectiousness, there is insufficient evidence to determine whether jerky presents a risk of WNV infection to humans.

Q. WHAT SHOULD WILD GAME HUNTERS DO TO PROTECT AGAINST WNV INFECTION?

A. Hunters should follow the usual precautions when handling wild animals. During mosquito season, hunters should apply insect repellent to clothing and skin, according to label instructions. Hunters should wear gloves when handling and cleaning animals to prevent blood exposure to bare hands. The game meat should be cooked thoroughly.

### References:

South Dakota Department of Health West Nile website: <http://WestNile.sd.gov>  
CDC West Nile Questions and Answers: [www.cdc.gov/ncidod/dvbid/westnile/q&a.htm](http://www.cdc.gov/ncidod/dvbid/westnile/q&a.htm)  
APHIS Questions & Answers About West Nile Virus  
[www.aphis.usda.gov/lpa/pubs/fsheet\\_faq\\_notice/faq\\_ahwnv.html](http://www.aphis.usda.gov/lpa/pubs/fsheet_faq_notice/faq_ahwnv.html)